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09/674,256	12/22/2000	Geoffrey R Morris	282318-00008	5053

3705 7590 03/11/2005

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EXAMINER	
FORD, JOHN K	
ART UNIT	**PAPER NUMBER**
3753	

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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.

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	02092005

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Commissioner for Patents

See attached Examiner's Answer and translation of JP 61-202084.

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/674,256
Filing Date: December 22, 2000
Appellant(s): MORRIS, GEOFFREY R.

David C. Jenkins
For Appellant

EXAMINER'S ANSWER

This is in response to the (revised) appeal brief filed June 28, 2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is incomplete. A correct statement of the status of the claims is as follows:

This appeal involves claims 1-5, 9, 10, 12 and 14-16 as stated by Appellant.

Claims 6-8, 11 and 13 been canceled.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief should be clarified.

A communication after final rejection was filed January 20, 2004 to make Australian Petty Patent AU-B-68020/98 of record. It was acknowledged in an advisory action mailed January 30, 2004.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

Appellant's brief includes a statement that claims 1, 12 and 16 do not stand or fall together and provides reasons as set forth in 37 CFR 1.192(c)(7) and (c)(8).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

AU-8-68020/98	MORRIS	09/1998
US-5,242,015	SAPERSTEIN et al.	09/1993
JP-61-202084	UTO	09/1986
US-6,173,767	KENNON	01/2001

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-5, 9, 10, 12 and 14-16 are rejected under 35 U.S.C. 102(b). This rejection is set forth in a prior Office Action, Paper #10, page 4, mailed 11/12/03.

This rejection is withdrawn in view of applicant's submission of AU-8-68020/98 after the final rejection was mailed. The Examiner did not have the relevant facts at his disposal at the time the final rejection was prepared, pending applicant's supplemental response.

Claims 1-5, 12 and 14-16 are rejected under 35 U.S.C. 102(b) or 103(a). This rejection is set forth in a prior Office Action, Paper #10, page 5, mailed 11/12/03.

Claims 1-5, 12 and 14-16 are rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, Paper #10, page 6, mailed 11/12/03.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a). This rejection is set forth in a prior Office Action, paper #10, page 6, mailed 11/12/03.

(11) Response to Argument

Appellant's arguments as to claims 12, 14 and 15 are convincing and the rejections of those claims stated above are withdrawn. Claims 12, 14 and 15 are interpreted, in light of Appellant's arguments in the Brief, to be directed to the combination of a roofing panel and a heat exchange assembly. While the prior art relied upon by the Examiner meets all of the limitations of the "heat exchange assembly" recited after the word "including" in claim 12, none of the prior art teaches or fairly suggests the placement of that heat exchange assembly in a roofing panel. Accordingly claims 12, 14 and 15 are allowed.

The Examiner addresses the remainder of Appellant's remarks in the order they were presented in the Brief filed June 28, 2004.

AU 696305

Appellant's first argument on page 4 of the Brief in regard to AU696305 is convincing because both AU696305 and the present application claim priority to the same priority document, a fact that was not made clear to the Examiner until after the final rejection was prepared and mailed. The current Examiner was relying on the search report prepared by the Australian Patent Office.

Saperstein

Appellant argues that the Examiner equated the terms "panel" and "sheet" in the first office action mailed September 9, 2002 because the Examiner did not separately discuss the term

"sheet". The Examiner assumes counsel reads his claims and knows the words within them. With regard to "sheets" the Examiner did not believe any one could reasonably argue that Saperstein discloses "sheets" but did believe that one could argue "panel" and wanted to make his interpretation of "panel" clear. The Examiner never equated the terms "panel" and "sheet" as argued here.

To bolster Appellant's argument that a sheet must be "flat" Appellant cites a definition from what appears to be a dictionary for elementary school students or junior high school students that was located on the Internet. Because Appellant had relied earlier on the authoritative Webster's New Twentieth Century Dictionary, Unabridged, 2nd Edition for another definition related to claim language (i.e. "manifold"), the Examiner requested production of the definition of "sheet" from it by Appellant (submitted with the new Brief on 06/28/04). Predictably, no definition of "sheet" from the unabridged dictionary used the word "flat." The most pertinent broad definitions of flat from the Webster's Dictionary are: "a broad continuous surface, layer or expanse, as of flame, water, ice etc." or "a broad, thin, usually rectangular piece of any material, as glass, plywood, tin etc."

Appellant has engaged the Examiner and the Board in a bit of dictionary swapping to make his argument a colorable one. Because the PTO examines claims on the basis of the broadest reasonable interpretation of the claim language, not inconsistent with the specification, the Examiner and the Board cannot rely on the narrower definition of "sheet" given in the children's dictionary. The specification does not give the terms "sheet" or "panel" any "special meaning." The Board is urged to reject Appellant's argument on this basis. A "sheet" need not

be flat as evidenced by the definition given in the authoritative Webster's Unabridged Dictionary.

While the Examiner had been initially willing to view a panel as flat (Paper No. 6, page 2, last paragraph) relying on the fact that the extrusion of Saperstein must necessarily be flat prior to bending, counsel, muddied the waters in his remarks on pages 7-8 of his response of March 14, 2003 (Paper No. 8, paragraphs spanning pages 7-8 entitled "The Invention", incorporated here by reference). What counsel in fact did was to state that the invention was even broader than what the Examiner had initially contemplated. He stated in the broadest terms that the invention could "be used as a roofing panel," that the passageways could receive or contain any fluid and most expansively "the heat exchange assembly can be of any suitable shape and configuration consistent with the above" (emphasis supplied). Nowhere in that synopsis of the invention did counsel ever refer to the word "flat" to limit Appellant's invention. In fact, counsel's statement of the invention was so expansive that he successfully convinced the Examiner to interpret the words even more broadly than he had originally. Rather than "narrowing" by estoppel, counsel effectively "broadened" by estoppel. On that backdrop, after prosecution ended, counsel seeks to use extrinsic sources (dictionaries and new arguments) to undercut the statement made during prosecution. Changing positions after prosecution is over does not contribute to the goals of any orderly appeal. The Board is urged to reject this latest charge in Appellant's arguments in favor of the ones that were represented to apply during examination.

DT '326, in the English Abstract, clearly discloses that panels 9 are "two involutely curved panels" (emphasis supplied) and consistent with applicant's expansive definition of the

invention above there is nothing in the specification that states that the "roofing panel" must be flat and likewise nothing that states the "sheets" must be flat. It is noted that all the bottom of page 5 and top of page 6 of the Brief counsel tries to go back to the earlier remarks of the Examiner as if counsel had never made the expansive remarks on pages 7-8 of Paper No. 8. Counsel is clearly changing his position here from that which was used to guide the Examiner's interpretation during prosecution. Somewhat hypocritically counsel blames the Examiner for changing his position. He contends that "it is axiomatic that a flat panel must be, by definition, flat" (Brief, page 6, top). Unfortunately, the claims do not claim a "flat panel" (emphasis supplied) and Abstract of DT '326 shows evidence that one of ordinary skill in the heat exchange art is aware of and comfortable with the notion that a panel can be curved.

It is reiterated that the sheets of Saperstein are parallel to one another notwithstanding that they are curved. Again an authoritative dictionary (counsel's own Webster's Unabridged) does not state that "sheets" must be flat.

Finally, Saperstein's heat exchanger 100 is stated to be an extrusion which means that it is inherently flat when it is made, as extrusions by virtue of being formed by forcing materials through a die emerges as a straight flat tubular structure (as is common knowledge in the heat exchange field). With regard to the 35 U.S.C. 103 aspect of this rejection, to have assembled the Saperstein flat extruded heat exchanger 100 with manifolds (106, 102) at both ends (as shown in Figure 8) and then as a final step to have coiled it, would have been obvious. At the intermediate stage when the extruded heat exchanger 100 was not yet coiled it would necessarily be a flat panel made of series of flat sheets. See the paragraph spanning pages 5-6 of the final rejection (Paper No. 10). Appellant doesn't even comment on this observation by the Examiner. It is

therefore submitted, in the absence of any evidence, or even argument, to the contrary that the Examiner's rejection be affirmed.

Saperstein/JP 61-202084

Appellant correctly points out that JP '084 contains a multiplicity of stacked straight tubes 2, but that is not deemed to be fatal to the reference. It shows an integral header (5, 6) construction in Figure 2 that the Examiner believes would have been obvious to have used to have formed headers (106, 102) of Saperstein (i.e. rectangular and with a shared wall). Advantages to such a construction are clearly stated in the English Abstract of JP '084.

Kennon (6,173,767)

Appellant admits that Kennon discloses a pressure relief valve but argues that the motivation for making the combination must be explicitly found in the reference. Such is not the case. See the *en banc* decision in In re Dillon, 16 USPQ2d 1897 (Fed. Cir. 1990), where it was definitively established that the motivation need not explicitly be found in the references themselves.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

John K. Ford
Primary Examiner

March 6, 2005

Conferees
Gene Mancene (SPE 3753)
Leonard Leo (Primary Examiner 3753)

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PTO 05-2266

Japanese Patent
Document No. S61-202084

HEAT EXCHANGER

[Netsu Kokanki]

Shozo Ube

UNITED STATES PATENT AND TRADEMARK OFFICE
Washington, D.C. February 2005

Translated by: Schreiber Translations, Inc.

Country	:	Japan
Document No.	:	S61-202084
Document Type	:	Kokai
Language	:	Japanese
Inventor	:	Shozo Ube
Applicant	:	Showa Aluminum Co., Ltd.
IPC	:	F 28 D 1/053 7/10
Application Date	:	March 1, 1985
Publication Date	:	September 6, 1986
Foreign Language Title	:	Netsu Kokanki
English Title	:	HEAT EXCHANGER

Specification

1. Title of the invention

Heat exchanger

2. Patent Claim

A heat exchanger wherein multiple heat exchanging tubes (2) in possession of fluid paths (3) configured in parallel are laid, in parallel, across and fixed to a pair of head plates (4) & (4) configured in mutual opposition between left & right, wherein first tank units (5) are configured respectively on the left side of the left head plate (4) and the on the right side of the right head plate (4), wherein second tank units (6) are configured respectively on the left side of the left first tank unit (5) and on the right side of the right first tank unit (5), wherein both terminal units of a partial fluid path(s) (3a) selected from among the multiple fluid paths (3) of at least one heat exchanging tube (2) are opened to the respective interiors of the first tank units (5) & (5), wherein the remaining fluid path(s) (3b) is extended toward the left & right sides of the same heat exchanging tube (2) in a state where the protuberant units (2a) & (2a) are being configured to punch through the respective first tank units (5) & (5), and wherein both terminal units of the remaining fluid path(s) (3b) are opened to the respective interiors of the second tank units (6) & (6).

3. Detailed explanation of the invention

(Industrial application fields)

The present invention concerns a heat exchanger.

(Prior art)

[1] Numbers in the margin indicate pagination in the foreign text.

Automobiles, motorcycles, compressors, etc. have been known in the prior art as machines that require heat exchangers as constituent components, whereas since it is necessary to install components designed to serve diverse functions within limited spaces in each case, it is problematic in that the installation space for the heat exchanger cannot be easily enlarged. In a case where air alone is used for cooling by permeating a fluid (e.g., water, oil, etc.) through a heat exchanger, furthermore, it is problematic in that the heat exchanger must be enlarged from the standpoint of /2 the cooling capacity of air. In a case where multiple heat exchangers are used within an automotive engine room, etc., a large installation space is required, and furthermore, since these heat exchangers are separately manufactured, the overall heat exchanger manufacturing costs become problematically high.

(Objective of the invention)

The objective of the present invention is to provide, for the purpose of solving the aforementioned problems, a heat exchanger designed to permit the permeations of two types of fluids through heat exchanging tubes of a singular heat exchanger in the context of enabling the use of said single heat exchanger as two types of heat exchangers, to enable the heat exchange of a given type of fluid permeated through the heat exchanging tube(s) not only with air outside said heat exchanging tube(s) but also with another type of fluid permeated through the heat exchanging tube(s), to improve the heat exchanging efficiency significantly, to provide an extremely compact constitution that requires a minimal installation space and that requires only low manufacturing costs.

(Mechanism for solving the problems)

In summary, the present invention provides, in order to achieve the aforementioned objective, a heat exchanger wherein multiple heat exchanging tubes in possession of fluid paths configured in parallel are laid, in parallel, across and fixed to a pair of head plates configured in

mutual opposition between left & right, wherein first tank units are configured respectively on the left side of the left head plate and the on the right side of the right head plate, wherein second tank units are configured respectively on the left side of the left first tank unit and on the right side of the right first tank unit, wherein both terminal units of a partial fluid path(s) selected from among the multiple fluid paths of at least one heat exchanging tube are opened to the respective interiors of the first tank units, wherein the remaining fluid path(s) is extended toward the left & right sides of the same heat exchanging tube in a state where protuberant units are being configured to punch through the respective first tank units, and wherein both terminal units of the remaining fluid path(s) are opened to the respective interiors of the second tank units.

(Application example and functions)

Next, an application example of the present invention will be explained with reference to figures.

As far as the present specification is concerned, the "left" & "right" and "front" & "rear" are imputed in relation to the standard of Figure 1, according to which the "left" & "right" sides coincide respectively with the left and right sides in Figure 1, whereas the "front" & "rear" sides coincide respectively with the front and rear sides of the page on which said figure is drawn.

In the figure, (1) signifies the heat exchanger of the present invention made of aluminum, whereas (2) signifies ten heat exchanging tubes which have been obtained by extrusion-molding aluminum and which are laid, in parallel, across and fixed to a pair of head plates (4) & (4) configured in mutual opposition between left & right, whereas each heat exchanging tube (2) possesses three fluid paths (3) configured in parallel. (5) & (5) are first tank units configured respectively on the left side of the left head plate (4) and the on the right side of the right head plate (4), whereas (6) & (6) are second tank units configured respectively on the left side of the lower half of the left first tank unit (5) and on the right side of the lower half of the right first tank unit (5). Of the total of ten heat exchanging tubes (2), furthermore, both terminal units of the fluid paths (3) of

each of the five heat exchanging tubes (2) in the upper portion of the heat exchanger (1) are individually opened to the respective interiors of the first tank units (5) & (5), whereas, of the three fluid paths (3) of each of the five heat exchanging tubes (2) in the lower portion of the heat exchanger (1), both terminal units of the pair of fluid paths (3a) & (3a) positioned respectively at the front & rear ends thereof are opened to the respective interiors of the first tank units (5) & (5), whereas the remaining middle fluid path (3b) is extended toward the left & right sides of the same heat exchanging tube (2) in a state where the protuberant units (2a) & (2a) are being configured to punch through the respective first tank units (5) & (5), whereas both terminal units of this remaining fluid path (3b) are opened to the respective interiors of the second tank units (6) & (6). In the /3 above, each heat exchanging tube (2) is prepared by extrusion-molding aluminum, and therefore, protuberant units (2a) & (2a) can be easily formed respectively on the left & right sides of said heat exchanging tube (2) by partially depleting both terminal units of the extrusion-molded product on the left & right from the front & rear sides, respectively.

(7) is a first fluid introduction tube connected to the upper terminal unit of the profile plane of the left first tank unit (5), whereas (8) is a first fluid discharge tube connected to the upper terminal unit of the profile plane of the right first tank unit (5), whereas (9) is a second fluid introduction tube connected to the lower plane of the right second tank unit (6), whereas (10) is a second fluid discharge tube connected to the lower plane of the left second tank unit (6), whereas (11) and (12) are respectively upper and lower side panels laid across and fixed to both, namely upper and lower, terminal units of the left & right head plates (4) & (4), whereas (13) signifies corrugated fins configured to intervene not only in-between mutually adjacent heat exchanging tubes (2) & (2) above and below but also in-between the upper & lower side panels (11) & (12).

In a case where water and oil are used respectively as first and second fluids within the aforementioned heat exchanger (1), for example, the single heat exchanger (1) can serve functions of two heat exchangers, namely a radiator and an oil cooler. In other words, not only is the water introduced into the left first tank unit (5) from the first fluid introduction tube (7) of the heat

exchanger (1), but the oil is also introduced into the right second tank unit (6) from the second fluid introduction tube (9). The water hereby introduced into the left first tank unit (5) not only arrives at the interior of the right first tank unit (5) via all the fluid paths (3) of the five heat exchanging tubes (2) in the upper portion of the heat exchanger (1) but also arrives at the interior of the right first tank unit (5) via both frontal & rear fluid paths (3a) & (3a) of the five heat exchanging tubes (2) in the lower portion of the heat exchanger (1), whereas in the meantime, it becomes cooled as a result of heat exchange with air via the tube walls and the corrugated fins (13), and the water thus cooled becomes discharged via the first fluid discharge tube (8). The oil introduced into the right second tank unit (6), on the other hand, arrives at the interior of the left second tank unit (6) via the respective middle fluid paths (3b) of the five heat exchanging tubes (2) in the lower portion of the heat exchanger (1), whereas in the meantime, it becomes cooled as a result of heat exchange with air via the tube walls and the corrugated fins (13). The functions of two types of heat exchangers, namely a radiator and an oil cooler, can accordingly be served by the single heat exchanger (1).

Moreover, in a case where the aforementioned heat exchanger (1) is used as a radiator, for example, and where water and a refrigerant derived from another heat exchanger (not shown in the figure) are used respectively as first and second fluids, the water becomes cooled not only by the air but also by the refrigerant, based on which it becomes possible to rapidly cool the water within a brief period, to improve the heat exchange efficiency significantly, and to provide a compact constitution.

Incidentally, the heat exchanger (1) of the aforementioned application example is constituted to possess ten heat exchanging tubes (2), although the number is not limited so long as it is at least two. Three fluid paths (3), furthermore, are configured on each heat exchanging tube (2), although the number is not limited so long as it is at least two. An extrusion-molded aluminum material is used as each heat exchanging tube (2), although the heat exchanging tubes (2) may instead be constituted by multiple electromagnetic tubes made of aluminum configured in parallel on a

horizontal plane (not shown in the figure). The protuberant units (2a) & (2a), furthermore, are configured on both terminal units of partial heat exchanging tubes (2) in the application example, /4 although these protuberant units (2a) & (2a) may be configured on both terminal units of all heat exchanging tubes (2) by extending the second tank units (6) & (6) in some cases.

The heat exchanger (1) of the aforementioned application example is made of aluminum, although it may also be made of other metals. The heat exchanger (1) shown in the figure, furthermore, is of the horizontal type, although it is also possible to provide a heat exchanger of the vertical type by positioning the first & second tank units (5) & (6) above and below, respectively.

(Effects of the invention)

As has been discussed above, the heat exchanger of the present invention is characterized by a constitution wherein multiple heat exchanging tubes (2) in possession of fluid paths (3) configured in parallel are laid, in parallel, across and fixed to a pair of head plates (4) & (4) configured in mutual opposition between left & right, wherein first tank units (5) are configured respectively on the left side of the left head plate (4) and the on the right side of the right head plate (4), wherein second tank units (6) are configured respectively on the left side of the left first tank unit (5) and on the right side of the right first tank unit (5), wherein both terminal units of a partial fluid path(s) (3a) selected from among the multiple fluid paths (3) of at least one heat exchanging tube (2) are opened to the respective interiors of the first tank units (5) & (5), wherein the remaining fluid path(s) (3b) is extended toward the left & right sides of the same heat exchanging tube (2) in a state where the protuberant units (2a) & (2a) are being configured to punch through the respective first tank units (5) & (5), and wherein both terminal units of the remaining fluid path(s) (3b) are opened to the respective interiors of the second tank units (6) & (6), based on which it becomes possible to permeate two types of fluids through the heat exchanging tubes (2) of the single heat exchanger (1) and to use the single heat exchanger (1) as two types of heat exchangers, whereas it also becomes feasible to enable the heat exchange of a given type of fluid permeated through the heat exchanging

tube(s) (2) not only with air outside said heat exchanging tube(s) (2) but also with another type of fluid permeated through the heat exchanging tube(s) (2), to improve the heat exchanging efficiency significantly, and to provide an extremely compact constitution that requires a minimal installation space. Still another effect lies in the low overall manufacturing cost of the heat exchanger (1) in comparison with a case where a pair of separately manufactured heat exchangers are used, as in the prior art.

4. Brief explanation of the figures

The figures show an application example of the present invention, where Figure 1 is a partially dissected frontal view diagram, whereas Figure 2 is a diagram which shows a cross-sectional view along the II-II line in Figure 1, whereas Figure 3 is a diagram which shows a magnified oblique view of major components, whereas Figure 4 is a diagram which shows a partially dissected oblique view of the heat exchanging tube.

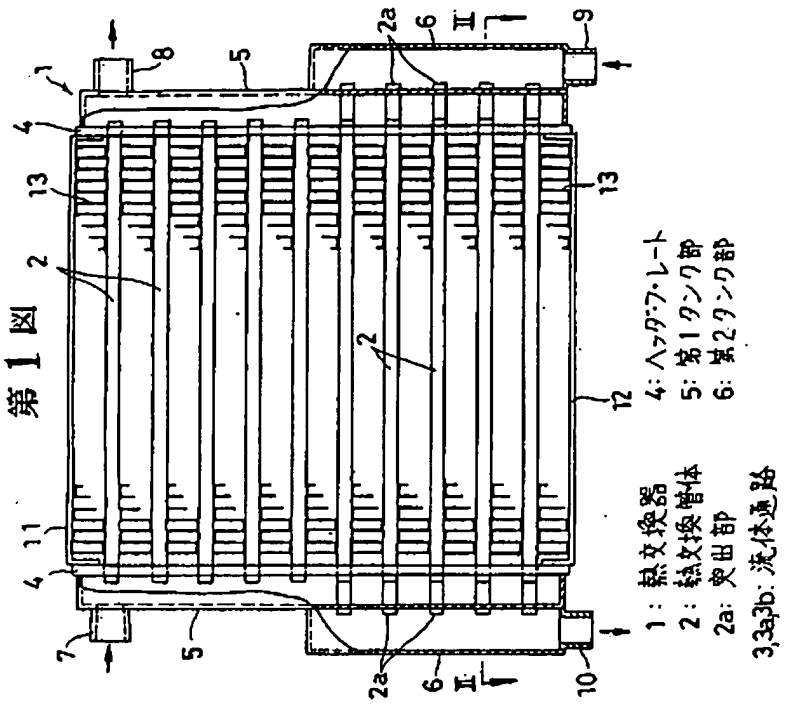
(1): Heat exchanger; (2): Heat exchanging tube; (2a): Protuberant unit; (3), (3a), & (3b): Fluid paths; (4): Head plate; (5): First tank unit; (6): Second tank unit.

[END]

Patent Applicant: Showa Aluminum Co., Ltd.

Agent: Hidenosuke Kishimoto, patent attorney, and 4 others

Figure 1 /5



[(1): Heat exchanger; (2): Heat exchanging tube; (2a): Protuberant unit; (3), (3a), & (3b): Fluid paths; (4): Head plate; (5): First tank unit; (6): Second tank unit]

Figure 2

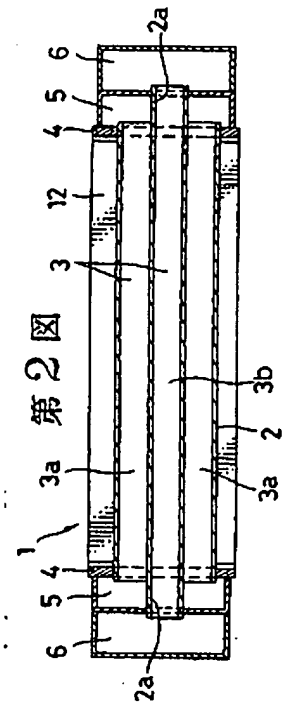


Figure 3

第３図

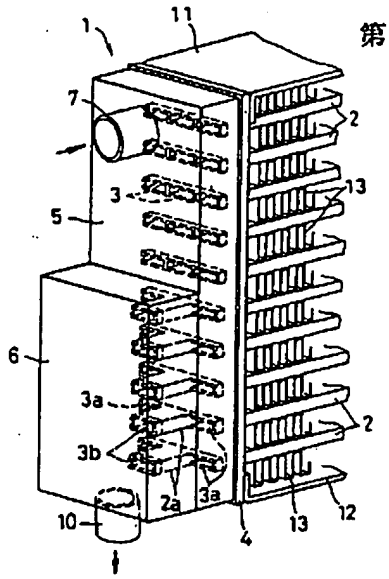


Figure 4

第４図